# MDC-I8220VDN User's Manual

Part 1

# (Product Overview)

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# 1. Product Overview

## 1.1. MicroDigital®

MicroDigital® is a device which digitizes analog Video from CCD Camera as digital stream and transmits over Internet.

Users can monitor Video at any places in real time by MS Internet Explorer or Netscape Communicator without any additional software, if Internet access is possible.

## 1.2. MDC-I8220VDN

MicroDigital® MDC-I8220VDN is a stand-alone device transmitting Video from built-in Analog Camera over IP(Internet Protocol) Network.

It can transmit up to 30fps(NTSC@4CIF) over the existing network such as LAN, leased line, DSL and Cable modem. You can monitor Video of MDC-I8220VDN through either web browser(MS IE or Netscape Communicator), if MDC-I8220VDN is connected to Network. MDC-I8220VDN supports Video compression both Motion-JPEG and H.264 simultaneously so that user can choose appropriate Video compression for the purpose.

MDC-I8220VDN supports NTSC/PAL and 5 different size and 6 levels of Video quality.

**Picture 1 MDC-I8220VDN**

## 1.3. Key Functions of MDC-I8220VDN

- Standalone device built-in web server
- 10M/100M Auto Sensing Ethernet
- Configure and control device through Web browser
- Max 30 fps transmission speed on TCP/IP network
- Effective Bandwidth & Bit-rate Control (VBR/CBR) by H.264
- Supports Dual Stream (Motion JPEG & H.264)
- 1ch Voice Encoding / 1ch Voice Decoding
- Support Dynamic IP users by IPCCTVDNS server
- Support Various PTZ (Pan/Tilt/Zoom) Devices
- Support Sensor Input, Digital Output
- Support Transparent mode
- Built-in 2 way Audio transmission (1ch A-in, 1 A-out)
- Encryption function by user authentication
- Support Modem (Dial-in, Dial-out)
- Image transmission function via FTP, Email

## 1.4. Technical Specification of MDC-I8220VDN

| Model Name | MDC-I8220VDN |
|---|---|
| Hardware | 32bit Embedded CPU<br>Flash 8Mbytes /SDRAM: 128Mbytes<br>Linux version 2.6.xx operating system<br>Battery backed up real-time clock |
| Image sensor | 1/3" 410K Sony CCD |
| Lens | 2.8 ~ 11.0mm DC Auto Iris |
| Minimum illumination | 0.3 Lux, Sens-up 0.002 Lux |
| Video related special functions | BACKLIGHT (OFF / LOW / MIDDLE / HIGH)<br>AGC (OFF / LOW / MIDDLE / HIGH)<br>LENSE (MANUAL / DC )<br>SHUTTER (ESC / MANUAL / Flicker Less)<br>WHITE BALANCE (ATW / AWC / MANUAL)<br>DNR(Dynamic Noise Reduction) |
| Video compression | Motion JPEG<br>H.264 |
| Resolution | NTSC: 720x480, 704x480, 352x240,176x112<br>PAL: 720x576, 704x576, 352x288,176x144 |
| Max Sreaming Speed | 720 X 480 (NTSC) / 720 X 576 (PAL)<br>30 Frame per second |
| Video Streaming | Motion JPEG and H.264 Dual Streaming (Simultaneously)<br>Controllable frame rate and bandwidth |
| Image setting | Compression levels: 6 (Motion JPEG) / 6 (H.264)<br>Color: color, black & white |
| Voice | 4 bit ADPCM, Sampling rates 8KHz, Mono Audio<br>1ch in & 1ch out<br>Bandwidth: 2KByte/sec (per channel)<br>Min/Max Audio Freq.: 300Hz ~ 3.4KHz |
| LAN interface | 10/100BaseT Ethernet auto sensing<br>IEEE 802.3af Built-in POE |
| Alarm I/O Interface | 1 Photo-coupled inputs and 1 Relay output |
| Audio Compression | 8Bit PCM,8Khz, 8Kbyte / Sec |
| Audio Support | 2Way |
| Audio Input(MIC) | Input Impedence : 4 KOhm<br>Pantom Power : 5 Volt<br>Gain : 20 dB<br>Jack : 3.5mm Mono |
| Audio Output(SPK) | Output Impedence : 160 Ohm<br>Output Power : 50 mWatt<br>Output Voltage : Peek To Peek 1 Volte<br>Jack : 3.5mm Stereo |
| Power Over Ethernet | Option |
| Serial Interface | One serial port for console, modem(PSTN & GSM), serial input/output device, PTZ<br>CTL Port is RS-232, RS-485<br>Max Baudrate: 115200 bit/s |
| Security features | Multi user level protection for camera access,<br>PTZ, Alarm I/O |
| Advanced Service | Up to 15.5M memory for Pre/Post alarm buffer<br>e-mail, FTP, alarm Buffer by event or schedule<br>IP notification, Alarm Notification to e-mail,<br>CGI Call by event or schedule |

| | |
|---|---|
| Built-in Motion detections | Accuracy: 12x12=144 blocks<br>Motion Sensitivity : -100 ~ 100 : 100 is hypersensitive |
| Others | Transmit Serial input data transfer with Video<br>IP notification by e-mail |
| Management | Configurable by serial, web or telnet<br>Remote system update via telnet, FTP OR web browser. |
| PWR Supply | SMPS<br>input: 100~240VAC, 300mA<br>Output: DC 12 Volt, 800mA |
| PWR Consumption | DC 12Volt Max 600 mA |
| Operating Environment | Temperature : 32° ~ 122°F (0° ~ 50°C)<br>Humidity : 20 ~ 80% RH(non-condensing) |
| Simultaneous users | Live-cast for up to 16 clients |
| Installation, management and maintenance | Installation CD and web-based configuration<br>Firmware upgrades over HTTP or FTP , firmware available at www.microdigital.co.kr |
| Video access from Web browser | Video access from Web browser |
| Minimum Web browsing requirements | Pentium III CPU 500 MHz or higher<br>Windows XP, 2000, NT4.0*,<br>Internet Explorer 6.x or later |
| System integration support | Powerful API for software integration available at http://www.microdigital.co.kr, including Simple Viewer API, MicroDigital Control SDK, event trigger data in video stream, embedded scripting and access to serial port peripherals over HTTP/TCP<br>User can be installed user program daemon for event notification or sending image.<br>Embedded operating system: Linux 2.4 |
| Supported protocols | HTTP, TCP/IP, FTP, Telnet, RARP, PPP, PAP, CHAP, DHCP, SMTP client(e- mail), NTP, RTP/RTSP |
| Applications | MicroDigital VMS, MicroDigital Software NVR(MDR-IS004) |
| Included Accessories | Power supply 12 V DC / Power cord<br>Mounting brackets<br>Connector kit<br>Installation Guide (Hard copy)<br>CD (Installation wizard, user's manual, quick install guide & software), |
| Dimensions (HxWxD) and weight (1lbs = 454g) | 145pi * 120mm(H)<br>Weight: 884.5g (1.948 lbs) without power supply.<br>1000 kg (2200 lbs) impact-resident casing<br>Polycarbonate clear dome glass<br>Metal base |

**Table 1 : MDC-I8220VDN Specification**

## 1.5. MDC-I8220VDN Packing List

MDC-I8220VDN's packing box includes the following items

| | | |
|---|---|---|
| MDC-I8220VDN | 1ea | |
| MD-PWE Adapter (To supply power to MDC-I8220VDN through the LAN Cable.) | 1ea | |
| Power Supply Unit<br>(Power Cable & SMPS DC12V 0.8A Adapter) | 1ea | |
| Direct LAN Cable | 1ea | |
| CD (User's Manual, installation wizard and Pictures) | 1ea | |

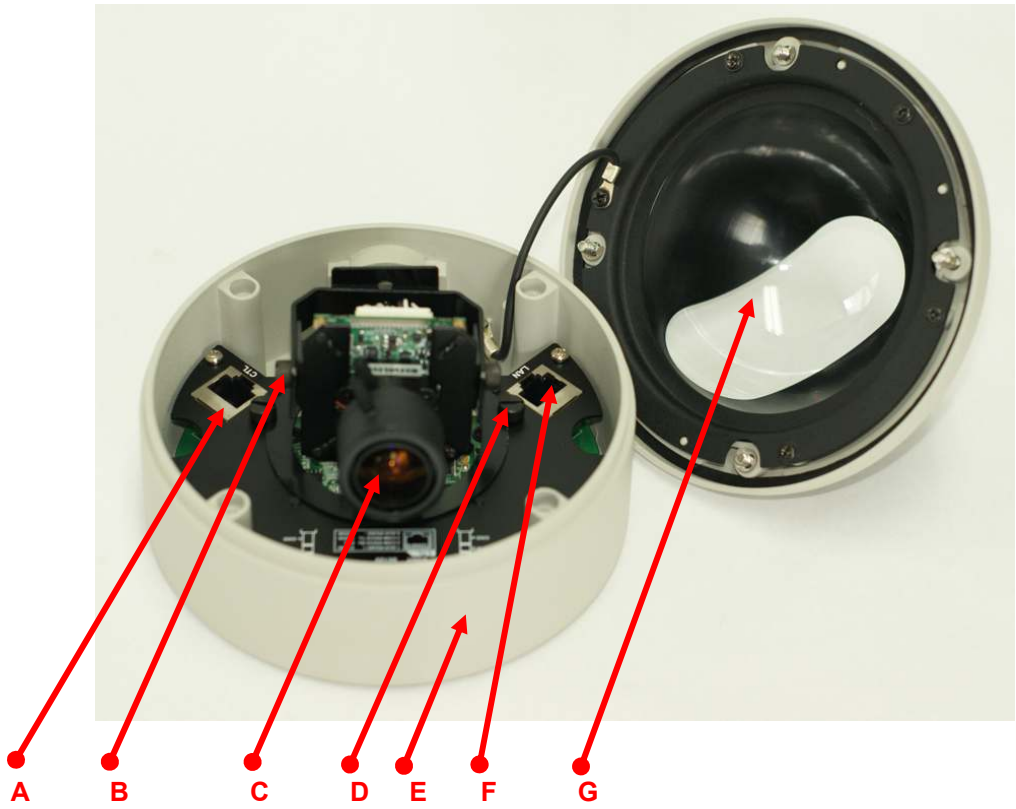
**Table 2 : MDC-I8220VDN Packing List**

☞ *Please check all the listed items are included in your package. For any missing items, please contact your local distributor.*

# 2. Hardware Description

## 2.1. The front of inner part of MDC-I8220VDN

Picture 2 Front of inner part

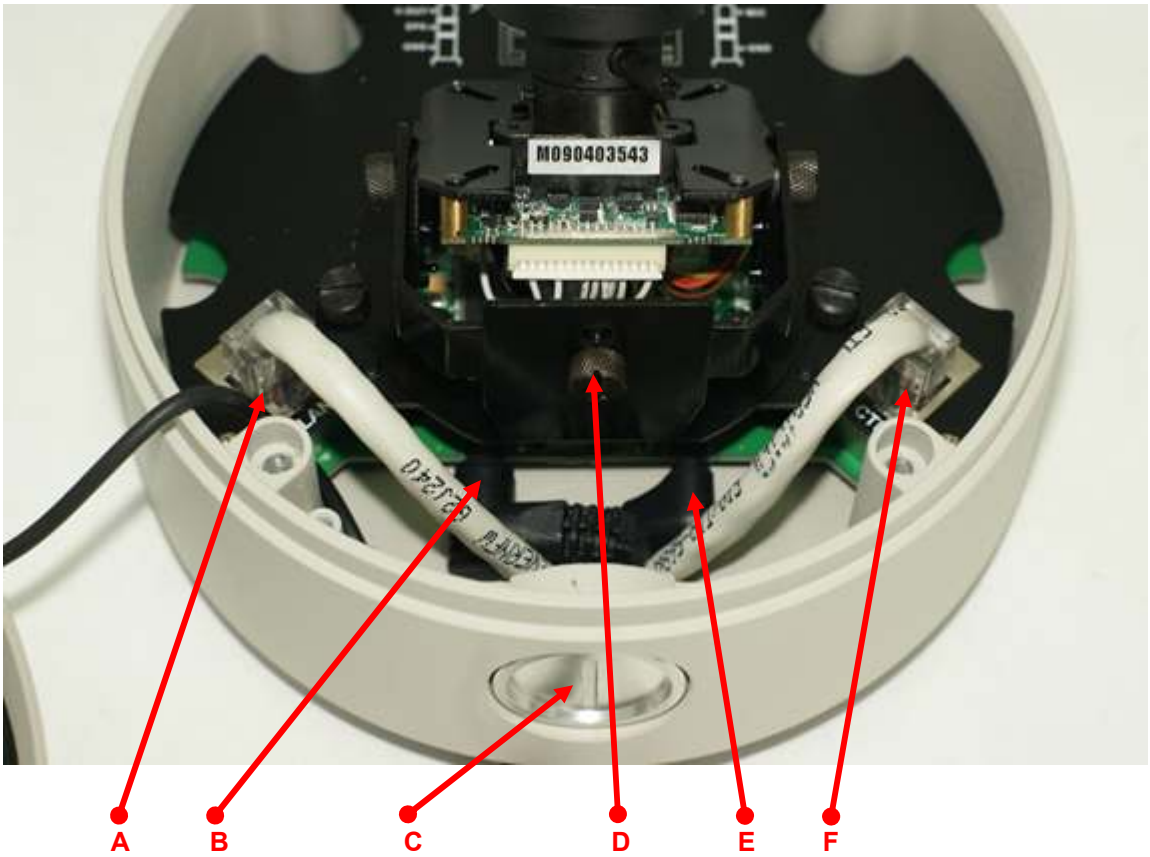



| | Name | Description |
|---|---|---|
| A | CTL Conn. | CTL Port (RS-485, RS-232, DI, DO) |
| B | Bolt for positioning module (Up and Down) | Move the position of Module up and down (Fix the position when install) |
| C | Camera Module | Camera module to input Video |
| D | Bolt for positioning module (Right and Left) | Move the position of Module right and left (Fix the position when install) |
| E | Main Body | Mainboard and Camera Module |
| F | LAN | LAN Connector to receive data and power from MD-PWE adapter. |
| E | Vandal Dome | Cover to protect Camera Module |

**Table 3 : The front of inner part of MDC-I8220VDN Description**

## 2.2. The back of inner part of MDC-I8220VDN

Picture 3 The back of inner part



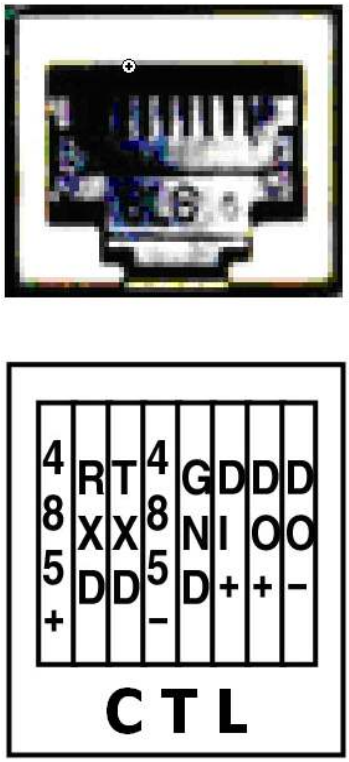

| | Name | Description |
|---|---|---|
| A | LAN | LAN Connector to receive data and power from MD-PWE adapter. |
| B | SPEAKER ,V-OUT Conn. | Speaker Port ,Video Output Port |
| C | Cable Hole | Hole for cable out |
| D | Bolt for positioning module (Up and Down) | Move the position of Camera up and down (Fix the position when install) |
| E | MIC Conn. | MIC Port |
| F | CTL Conn. | CTL Port (RS-485, RS-232, DI, DO) |

**Table 4 : The back of inner part of MDC-I8220VDN Description**

### 2.2.1. CTL Port Description

Pin-out information of COM port.

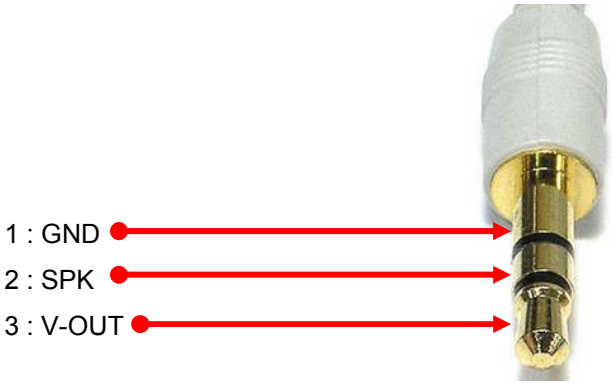
It's RS-232 port for Serial input device, Modem or Console (Hyperterminal.connection). For RS-232 connection, RXD,TXD and GND are used. For connection to PC, RXD and TXD are used. RXD and TXD should be cross to communicate properly




Picture 4 : CTL Port Description

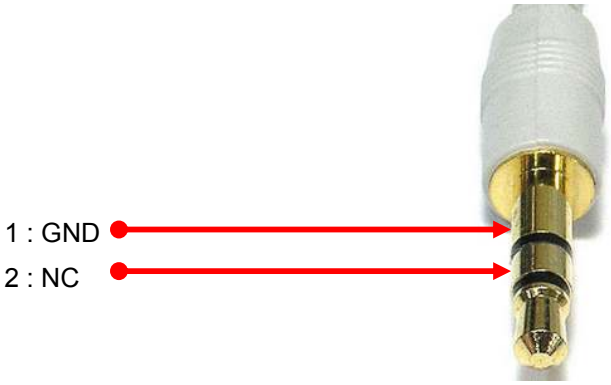
### 2.2.2. SPEAKER ,V-OUT JACK Description

Jack information for Mono Speaker or Video Out Jack.



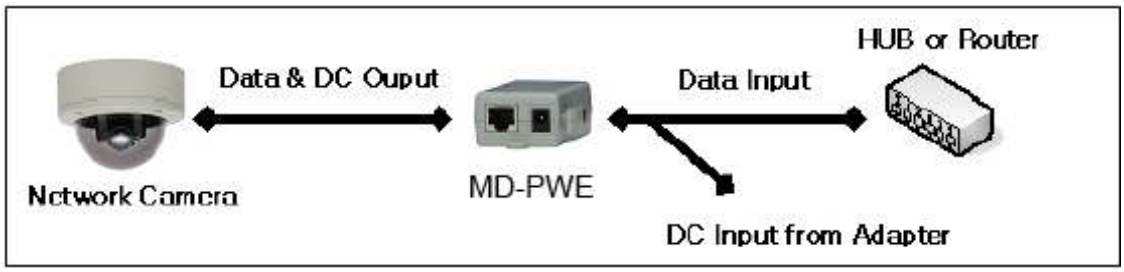
### 2.2.3. MIC JACK Description

Jack information for MIC




### 2.2.4. PWE Connection

MD-PWE adapter is to supply power to MDC-I8220VDN through UTP cable without the need to install power outlets and electrical cabling. Connect to UTP cable from LAN to the "HUB" port of the MD-PWE adapter, and connect to adapter to MD-PWE adapter. Connect the cable from the "DEV" port of the MD-PWE to the "LAN" port of the MDC-I8220VDN. After that, turn on the switch of MD-PWE adapter.




Picture 5 : MD-PWE Connection Diagram

# 3. MDC-I8220VDN HW installation and basic setup

## 3.1. Before installation

- Read carefully User's Manual.
- Check User's Network (IP Address, Network Mask and default gateway)
- Secure IP address for MDC-I8220VDN.

## 3.2. Factory Default Condition

The following table shows the factory default condition. Please refer to this when you need to change the values on admin menu.

| | Factory Default Condition |
|---|---|
| Admin ID | root |
| Admin password | root |
| IP address | 10.20.30.40 |
| Network mask | 255.255.255.0 |
| Gateway | 10.20.30.1 |
| Wireless LAN (Option) | Disabled |

**Table 5 : Factory Default Condition**

☞ *Factory default Admin ID and Password are all lower case letters. You can change the password with Capital letters.*

## 3.3. MDC-I8220VDN Hardware Installation

Following steps are the physical installation process for MDC-I8220VDN.

1. Fix the MDC-I8220VDN in place
2. Connect to direct LAN from LAN to the "HUB" port of the MD-PWE adapter. Connect to adapter to MD-PWE adapter.
3. Connect the cable from the "DEV" port of the MD-PWE to the "LAN" port of the MDC-I8220VDN.

After that, you need to follow the steps below.

- First, Network Configuration by MD-installer.
- Second, Camera Configuration by MD-installer or admin-menu.
- Third, Service Configuration by MD-installer or admin-menu.

You can configure most settings on Admin menu by Web Browser so you have to configure Network first.